

§ 101, comply with 35 U.S.C. § 112, ¶ 2, and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.

The applicants will now address each of the issues raised in the outstanding Office Action.

Rejections under 35 U.S.C. § 101

Claims 34 and 35 stand rejected under 35 U.S.C. § 101, as being directed to non-statutory subject matter. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

As was the case in In re. Lowry, 32 U.S.P.Q.2d 1031 (Fed. Cir. 1994), claims 34 and 35 are more than a mere abstraction -- the claimed data structures are specific structural elements in memory. Further, they provide tangible benefits. Specifically, they help control the sampling of addressed data, and identify a next hop destination of the samples, as well as state information. The data structures are clearly limited to a practical application. Thus, these claims are functional material recorded on a computer-readable medium. The Patent Office has recently instructed:

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized.

"Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", OG Notices: 22 November 2005, Annex IV.

In view of the foregoing, claims 34 and 35 are clearly statutory. Consequently, the applicants respectfully request that the Examiner withdraw this ground of rejection.

Rejections under 35 U.S.C. § 112

Claims 1 and 34 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Regarding claim 1, the Examiner contends that an act of "forwarding the samples" is performed when a state is stable, but that it is not known where to forward the samples to. The Examiner concludes that this leaves a doubt as to the scope of protection sought. The applicants respectfully disagree.

First, the applicants respectfully note that the claim recites "forwarding the samples *based on the next hop information*." This specifies how the samples are forwarded, and does so in a manner that would be abundantly clear to one skilled in the art. Second, even assuming, arguendo, that the claim did not specify where to forward the sample to, one skilled in the art would still be apprised of the scope of protection -- namely, forwarding the samples irrespective of where they are forwarded to. In any event, that is not the case as just described.

Accordingly, the applicants respectfully submit that claim 1 complies with 35 U.S.C. § 112, ¶ 2. Consequently, this rejection should be withdrawn.

Regarding claim 34, the Examiner contends that it does not set forth any steps involved in a method or process. This is because the applicants are not claiming computer-executable instructions for performing a process (so-called "In re. Beauregard" type claims), but rather are claiming a useful data structure stored on a computer-readable medium (a so-called "In re. Lowry" type claim.). Accordingly, the applicants respectfully submit that claim 34 complies with 35 U.S.C. § 112, ¶ 2. Consequently, this rejection should be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 1-4 and 9-12 (and apparently 13 and 15) stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No 6,625,773 B1 ("the Boivie patent") in view of U.S. Patent No. 6,791,980 B1 ("the Li patent"). The applicants respectfully request that the Examiner

reconsider and withdraw this ground of rejection in view of the following.

Before discussing at least some of the patentable features of the claims, the applicants will first briefly introduce the Boivie and Li patents. The Boivie patent concerns multicasting, and in particular, addresses problems that can occur when IP multicast schemes designed for a relatively small number of large multicast groups are used for large numbers of (e.g., smaller) multicast groups. (See, e.g., column 1, lines 40 through column 2, line 24.) The Examiner correctly notes that the Boivie patent replicates multicast packets [such that there is at least one copy of the packet for each next of for each of the destination nodes listed in the received packet], and sends [modified copies] of the packet to each of the next hops. (See, e.g., column 2, lines 29-56.)

The Li patent also concerns IP multicast. In particular, the Li patent is concerned with reducing the number of multicast routes maintained in a multicast routing information base (MRIB). It does so by aggregating some multicast routes and installing a single "policy route" in the MRIB instead of the group. (See, e.g., the Abstract.) When a multicast packet is being forwarded, a router determines whether the most-specific multicast route in the MRIB is a policy route. If so, it is determined whether or not the policy route is "accepted" or "rejected." If it is "rejected," the multicast packet is dropped. (See, e.g., column 7, lines 36-54.) A policy route is deemed to be a "rejected" policy route if it is an aggregation of multicast routes

that do not have a next hop device. (See, e.g., column 2, lines 64-67.)

Claims 1-4 and 9-13 and 15

In the rejection of claim 1, the Examiner contends that the Boivie patent teaches a method for controlling the sampling of addressed data (citing column 2, lines 42 and 43) and an act of generating samples from the addressed data (citing column 2, lines 47 and 48.) As the Examiner notes, the cited portions of the Boivie patent concern making a copy of packets.

As the applicants previously noted, the Examiner is improperly equating "sampling" with "multicasting," and generating samples with generating copies of packets. However, the ordinary meaning of "sampling" is the act of collecting elements or parts representative of the whole, or collecting a set of elements drawn from, and analyzed to estimate the characteristics of, a population. (See, e.g., Webster's II: New Riverside University Dictionary, page 1034.) The examples provided in the specification of the instant application are entirely consistent with this ordinary meaning. (See, e.g., section 1.2.2 CHALLENGES TO GATHERING DATA FOR NETWORK ANALYSIS.)

On the other hand, copies of a multicast packet are not a collection of, or parts of elements representative of packets processed by a router, nor are they drawn from, and analyzed to estimate the characteristics of, a population of packets processed by the router.

The Examiner disagreed, contending that the combination of the Li and Boivie patents discloses a system and method for multicast communications in a packet switched network, "wherein the collecting [of]

information and addresses for forwarding packets is obvious in [the] routing technique." Paper No. 20050902, page 8 Even assuming, arguendo, that the Examiner's statement is true, it is not particularly relevant to the claimed features. That is, this is not relevant to generating samples from the addressed data, and forwarding the samples based on the next hop information as claimed.

The Examiner further argues that the Li patent "also discloses that the router collects, configures and distributes policy routes to other routers in the domain using a policy bootstrap message." Paper No. 20050902, pages 8 and 9 This teaching, which concerns distributing information to routers, which may later use this information to forward multicast packets, is even less relevant to the claimed feature of generating samples from the addressed data, and forwarding the samples based on the next hop information as claimed.

Thus, independent claim 1 is not rendered obvious by the Boivie and Li patents of at least the foregoing reason. Since claims 2-4 and 9-12 (and 13 and 15) depend, either directly or indirectly from claim 1, they are similarly not rendered obvious by these patents.

Second, the Examiner argues that the Li patent teaches the claimed act of determining whether or not a state of next hop information is stable or not because it teaches determining whether or not a policy route is accepted or rejected. However, whether or not a policy route is accepted or rejected under the Li patent does not teach determining if a next hop is stable. Specifically, a "rejected" policy route in the Li patent is used to aggregate a group of multicast routes that the

router will not forward. (See column 4, lines 21-23.) That is, there is no next hop router for a source address A. (See column 5, lines 15 and 16.) As can be appreciated, unlike the present invention where there is a next hop ("determining a state of next hop information defining a destination for samples of addressed data") and it is determined whether that next hop is stable ("if it is determined that the state of the next hop information is stable"), the "rejected" policy routes in the Li patent have no next hop information to begin with. Consequently, it would be absurd to check the stability of something that doesn't exist.

Thus, independent claim 1 is not rendered obvious by the Boivie and Li patents of at least the additional foregoing reason. Since claims 2-4 and 9-12 (and 13 and 15) depend, either directly or indirectly from claim 1, they are similarly not rendered obvious by these patents.

Third, one skilled in the art would not have been motivated to combine the Boivie and Li patents as proposed by the Examiner. Specifically, in its background, the Boivie patent mentions schemes for sharing distribution trees --core based trees (CBT) --for multicast routing. However, the Boivie patent teaches away from CBT in view of the problems of concentrating traffic on small portions of the network, using less than optimal paths in routing packets, and requiring each router of a multicast tree to signal and store multicast routing information. (See column 2, lines 4-24.) By aggregating a group of multicast routes into a single policy route, the Li patent is apparently doing something similar to CBT, if not practicing some form of CBT. To reiterate, the Boivie patent *teaches away* from techniques

that combine multicast routing into a shared distribution tree. Thus, one skilled in the art would not have been motivated to combine the Boivie and Li patents in the manner proposed by the Examiner. Accordingly, these claims are not rendered obvious the Boivie and Li patents for at least this additional reason.

Claims 5-8 and 48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Li and Boivie patents as applied to claims 1 and 16, and further in view of U.S. Patent No. 6,275,492 B1 ("the Zhang patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

The Examiner concedes that the Li and Boivie patents fail to teach next hop information including an index or name associated with an interface. To compensate for this admitted deficiency, the Examiner relies on the Zhang patent, citing column 4, lines 10-15 and table 1. First, the applicants respectfully note that the next hop information in TABLE 1 of the Zhang patent lists whether or not the destination router is directly connected with a current router, or whether there is an intervening next router. It includes router name information, not interface information. Accordingly, claims 5 and 7 are not rendered obvious by the Li, Boivie and Zhang patents for at least this reason. Since claims 6 and 8 depend from claims 5 and 7, respectively, they are similarly not rendered obvious by these patents.

Further, even assuming, arguendo, that the Zhang patent teaches next hop information including interface information, the proposed combination does not compensate

for the deficiencies, discussed above, of the Boivie and Li patents as applied to claim 1. Furthermore, the Zhang patent does not provide a motivation for combining the Boivie and Li patents. Accordingly, claims 5-8 are not rendered obvious by these patents for at least these additional reasons.

In rejecting claim 48, the Examiner concedes that the Boivie and Li patents do not teach that the samples are network analysis samples. To compensate for this admitted deficiency, the Examiner relies on column 6, lines 48-58 of the Zhang patent, contending that this section of the Zhang patent teaches network analysis samples. However, the Zhang patent uses data packet analysis code to analyze router IDs (or other information contained in the packet). (Column 6, lines 51-54.) Router IDs are used when switching or routing packets (to avoid binding of a tag to a route). (See, e.g., column 2, lines 5-21.) Thus, the analysis performed in the Zhang patent is for packet forwarding, not for network analysis. According, claim 48 is not rendered obvious by the Boivie, Li and Zhang patents for at least this additional reason.

Further, even assuming, arguendo, that the Zhang patent teaches network analysis samples, the proposed combination does not compensate for the deficiencies, discussed above, of the Boivie and Li patents as applied to claim 1. Furthermore, the Zhang patent does not provide a motivation for combining the Boivie and Li patents. Accordingly, claim 48 is not rendered obvious by these patents for at least these additional reasons.

Conclusion



In view of the foregoing remarks, the applicants respectfully submit that the pending claims are in condition for allowance. Accordingly, the applicants request that the Examiner pass this application to issue.

Respectfully submitted,

February 8, 2006

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CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited on **February 8, 2006** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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